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The same evening two papers were read by A. Scott, one on the preparation of pure hydrobromic acid in which the employment of sulfurous acid is recommended in the place of amorphous phosphorus. It is very difficult to free the phosphorus completely from chlorine, and arsenic is almost always present, which gives rise to arsenious bromide in the hydrobromic acid and arsenites and arsenates in the bromides made from this acid. When sulfurous acid is used, the hydrobromic acid is easily freed from the sulfuric acid formed by two or three distillations, the last over barium bromide.

THE second paper by Mr. Scott was on a new sulfide of arsenic, which is obtained in the process of purifying phosphoric acid from the small quantity of arsenic derived from the impurity in the phosphorus used. The new sulfide has the formula As_2S_3 , and unlike the other sulfides of arsenic is insoluble in ammonia and ammonium sulfide, but is soluble in ammonium polysulfide, and is decomposed by caustic potash.

IN the last *Berichte* of the German Chemical Society, L. Vanino and O. Hauser call attention to an interesting reaction of lead peroxide. When it is exposed in a dry or even moist condition to a current of hydrogen sulfide, it glows brightly and the hydrogen sulfide burns with the blue flame of lead. The reaction is not only suitable for a lecture experiment on its own account, but it may be utilized for the ignition of explosive mixtures. Wet gun cotton is instantly exploded, and so are picrate powders, powdered metals such as aluminium, zinc and bismuth burn with brilliancy. Silver and bismuth peroxides act in a similar manner to lead peroxide, cobalt and copper peroxides become much heated in hydrogen sulfide, but do not ignite it, while red lead, pyrolusite, and freshly precipitated peroxide of manganese do not show the reaction.

It has lately been discovered by Moissan that metallic calcium is soluble in liquid sodium. On cooling the calcium separates out in brilliant white hexagonal crystals of the pure metal. The mass of sodium and calcium is put in absolute alcohol at 0° when the sodium is gradually dissolved out and the crystals of calcium remain. The metallic calcium is obtained by

the action of metallic sodium on calcium iodide and the whole process carried out in a closed iron crucible in one operation. Crystals of calcium may also be obtained by electrolyzing fused calcium iodide at a low red heat.

A PAPER has recently appeared in the *Bulletin* of the French Chemical Society, by A. Gautier, on the normal occurrence of arsenic in animals, including man. It appears to be always present in the thyroid gland, in lesser quantities in the thymus and the brain, while traces are always present in the skin and hair. It does not appear to be in any other organs of the body, and consequently would play little part in the toxicology of arsenic, as these organs are rarely used for the detection of arsenic; the brain, however, is sometimes examined. The arsenic appears to be in the form of nucleins.

J. L. H.

TOBACCO, TOBACCO-PIPES AND SMOKING.

PERHAPS the most American of all implements and practices, the above have been described and figured hundreds of times, but never in so scientific a spirit as by Joseph D. McGuire, the archaeologist, residing in Ellicott City, Maryland. His monograph appears among the octavo publications or 'Reports' of the United States National Museum, Smithsonian Institution, under the title: 'Pipes and Smoking Customs of the American Aborigines, based on material in the United States Museum,' 1897, pp. 351-645, and last year also appeared as a separate volume. Numerous illustrations give us an idea of the richest and most curious finds of sundry tribes, partly of stone or wood, partly of terracotta and clay, a large number of them having been found in the mounds of the Ohio and Mississippi valleys. The shape of the bowls are of all descriptions; some represent birds, heads of birds, mice and other rodents, toads, frogs, lizards, men in a recumbent, sitting or squatting posture, human hands and faces, etc. The tubular shape was widely in use in ancient America, though it looks very inconvenient to us; Mr. McGuire figures stone tubes with bone mouthpiece, sandstone tubes, pottery tube pipes, red pottery tube and bowl pipes, steatite tubular pipes, cop-

per tubes, bone pipes and others. There are also stone urn-shaped bowls, stone bowls with thong holes, antler pipes, fossil pipes, various kinds of trade pipes, brazed iron pipes, tomahawk and monitor pipes. The feathered calumet pipe of the West looks artistic and attractive, and the vase-shaped Micmac pipe has at least the merit of curiosity.

The author has with consummate industry collected passages referring to pipes and smoking in the historians of past centuries and given his ideas about the formation of types in smoking implements. There are but few articles of Indian manufacture that will give a clearer idea of the artistic sense or genus in fashioning ruder material than pipes, although they all manifest that they originated in the stage of barbarism. Probably the oldest instance, historically traceable, is the richly dressed shaman or chief represented upon the Palenque tablet of Chiapas state, who makes use of a long tubular pipe to produce a huge cloud of smoke issuing at the wider end, and seems to enjoy the smoking intensely, to judge from his very characteristic grimaces. This bas-relief is reproduced in McGuire's publication; he thinks that the use of tobacco for snuffing was peculiar to South America, and the habit of chewing is but seldom and indistinctly referred to in any part of this western world.

A. S. G.

SCIENTIFIC NOTES AND NEWS.

THE Prussian Budget, which has passed to a second reading, contains an appropriation of 7,300,000 Marks, for the purchase of lands in Berlin, on which is to be erected a building for the Academy of Sciences and the Royal Library. The value of the land is estimated at over 11,000,000 Marks, but about 3,000,000 Marks is obtained by the exchange of other property, and 1,000,000 Marks is to be appropriated next year.

At a meeting of the Royal Institution, London, on April 2d, it was announced that the managers had that day awarded the Actonial Prize of 100 guineas to Sir William Huggins, F.R.S., and Lady Huggins for their work 'An Atlas of Representative Stellar Spectra.' The special thanks of the members were returned to

Mrs. West and Mrs. F. Colenso for their present of a portrait of their father, the late Sir Edward Franklin, F.R.S., professor of chemistry at the Royal Institution from 1863 to 1868.

DR. RUDOLPH AMADEUS PHILIPPI the naturalist, professor in the University of Chili at Santiago, has celebrated the seventieth anniversary of his doctorate. Congratulatory addresses have been forwarded from the German Botanical Society and the Medical Faculty of the University of Berlin.

DR. O. BURGER, titular professor of the University of Göttingen, has been appointed director of the zoological division of the National Museum at Santiago and professor in the university.

MR. JOHN C. HAMMOND has been appointed assistant in the *Nautical Almanac* office, connected with the United States Naval Observatory, Washington, D. C.

DR. WILLIAM P. WILSON, director of the Philadelphia Commercial Museums, has gone to San Francisco to assist in the establishment of the Pacific Commercial Museum.

PROFESSOR OSCAR BOLZA, of the University of Chicago, has sailed from New York for Naples. He expects to be abroad for nine months pursuing mathematical investigations in a university town.

PROFESSOR F. WOHLTMANN, of Bonn, has been commissioned by the German government to proceed to Africa to make agricultural studies in the Cameroon District.

THE Michigan Academy of Sciences held its annual meeting at Lansing, on March 29th and 30th. The president, Professor Jacob Reighard, gave an address on 'The Biological Sciences and the People.'

PROFESSOR EDWARD L. NICHOLS, of Cornell University, will deliver the first annual address to the honorary scientific society of Sigma Xi at Kansas University during the commencement week in June.

PROFESSOR JOHN M. COULTER, who has recently returned to Chicago after a long stay in Washington, addressed the Botanical Club on April 10th on the present work of the Washington botanists.

MR. M. A. BARBER, associate professor of